

# Ecology of the Western High Peaks Region of Maine

Convergent Conservation  
Opportunities

# A Project of the Maine Appalachian Trail Land Trust

Peter McKinley, Ph.D. of McKinley Conservation Biology and  
Planning

Stephen Engle and Frederic Hyde of the Quebec Labrador  
Foundation Community Mapping project

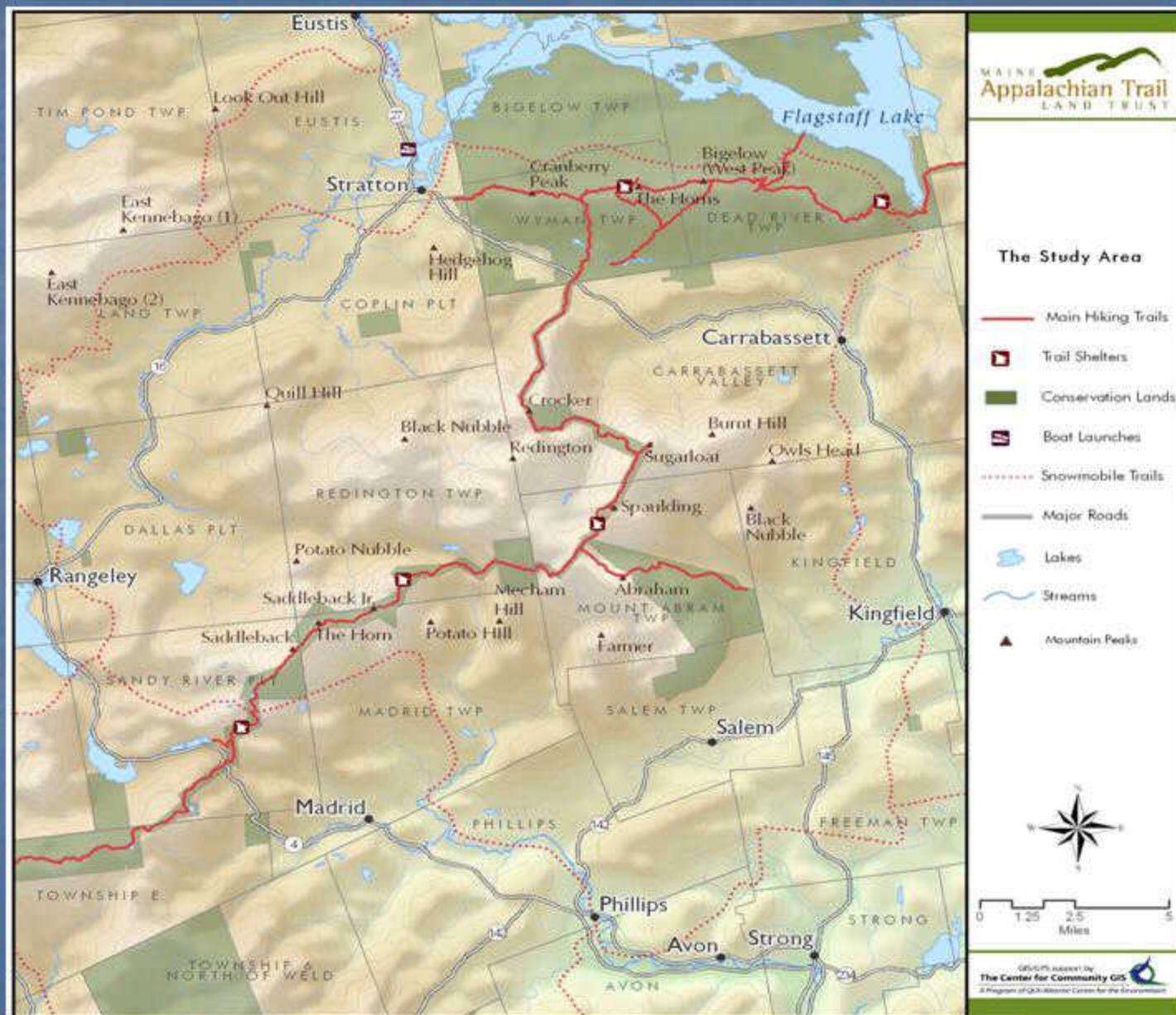
Funding generously provide by the Wilderness Society,  
Sweet Water Trust, and the Kendall Foundation



# The Study Landscape in its Regional Context



# The Approximately 600,000 Acre Study Landscape





# Arctic Alpine Plants and Communities and lot more.....





# High Elevation Forests and Unique/Rare Animal and Plant Communities; Mt. Abraham Trail





..... middle elevation  
mixed wood and transitional animal  
and plant communities (Abraham) .....



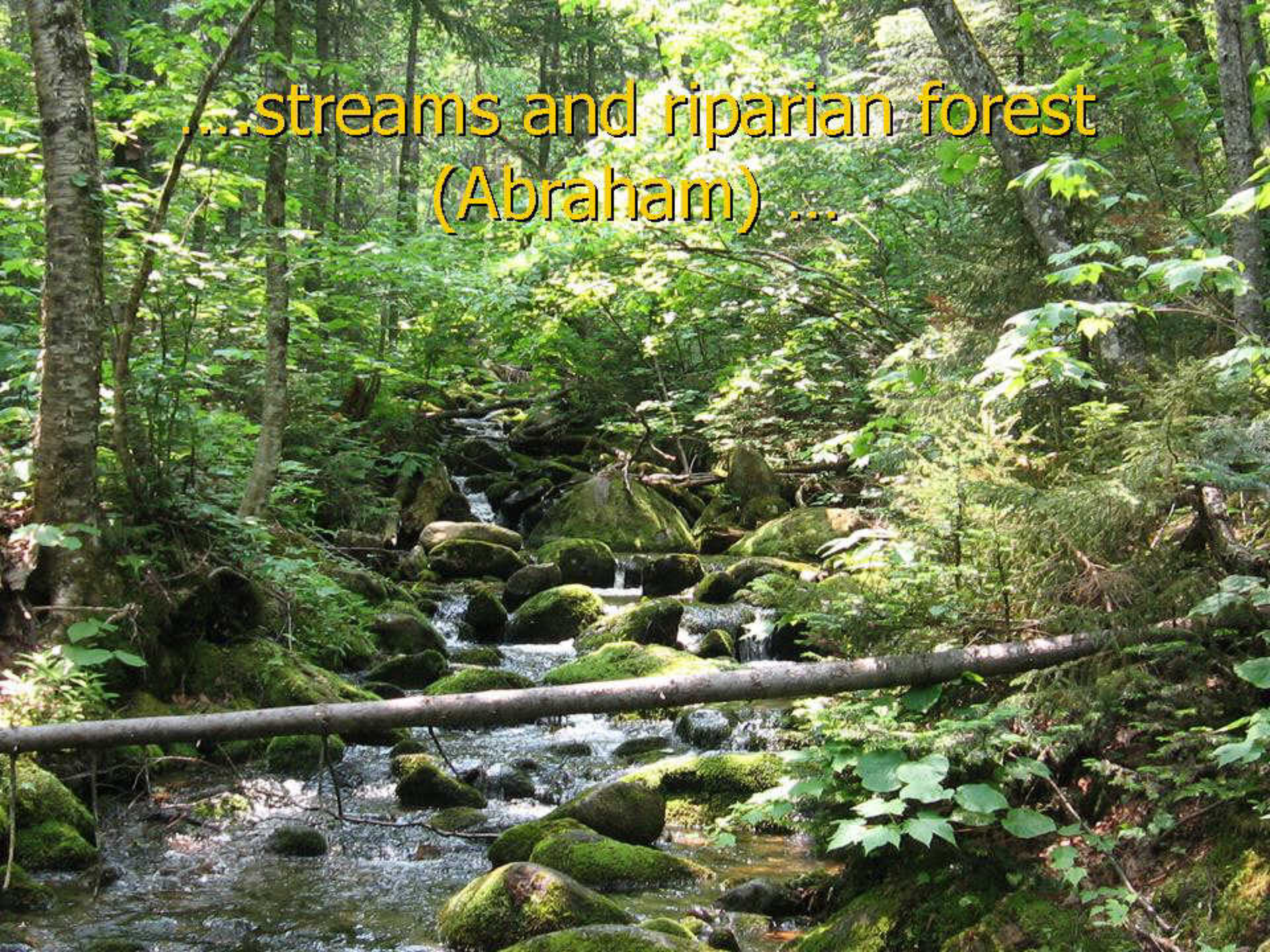


the ecological transition to  
communities comparable to  
southern parts of Maine continues  
(Abraham)....





....streams and riparian forest  
(Abraham) ....





....contiguous lower forests and  
major lakes from Saddleback Jr.





and Valley; from Saddleback Jr., to Potato  
Hill, and Abraham





# Transects from Phillips to Saddleback to Rangeley

## Elevation and Ecological Zonation





# Continental Ecotone





# Forest Transition from Northern Hardwood/Mixed to Boreal





# Convergent Conservation Opportunities

Novel Western  
Mountain Landscape  
at Local, Regional,  
and Continental  
Scales

Rare, threatened,  
sensitive species and  
populations

Rare, threatened,  
or sensitive  
communities

Rare Ecosystems



# Study Area has High Proportion of Species-Based Conservation Criteria

Species Based

```
graph TD; A[Species Based] --> B["At Risk:  
Endangered  
Threatened  
Sensitive"]; A --> C["Focal Species:  
Keystone  
(Process) Umbrella  
Engineer"]; A --> D["Functional Group:  
Pollinators  
Decomposers  
Predators"]
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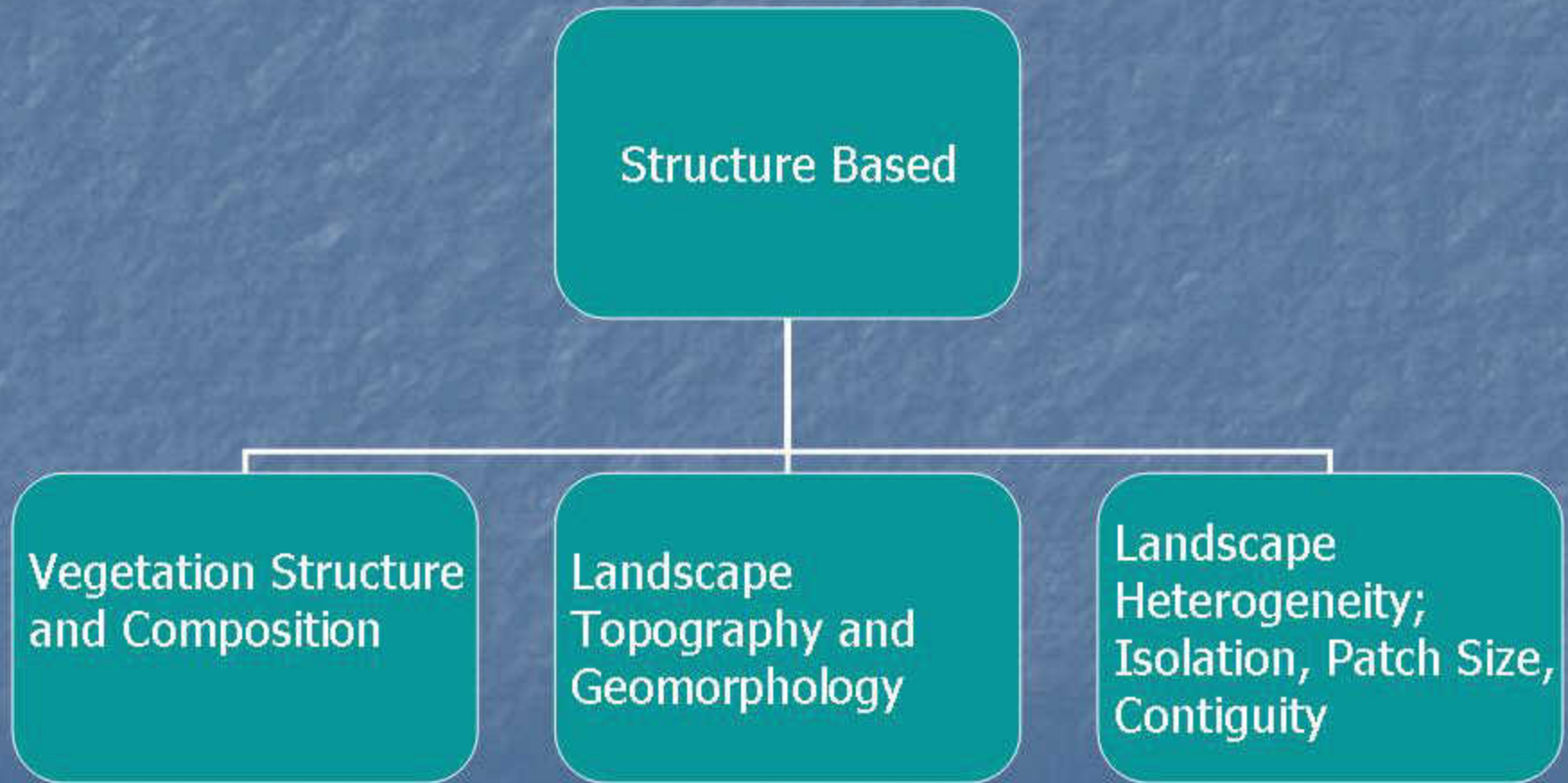
At Risk:  
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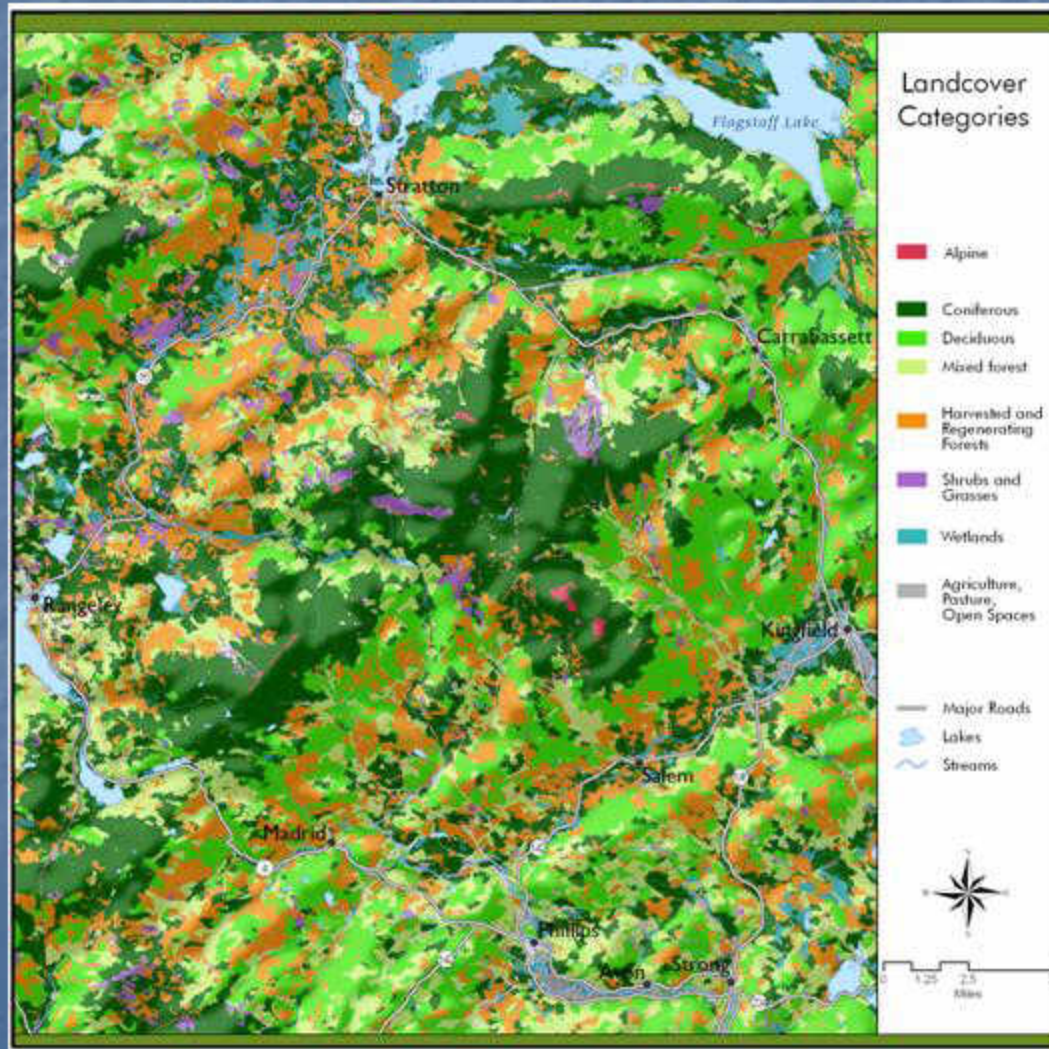


# Study Area has High Proportion of Structure-Based Conservation Criteria



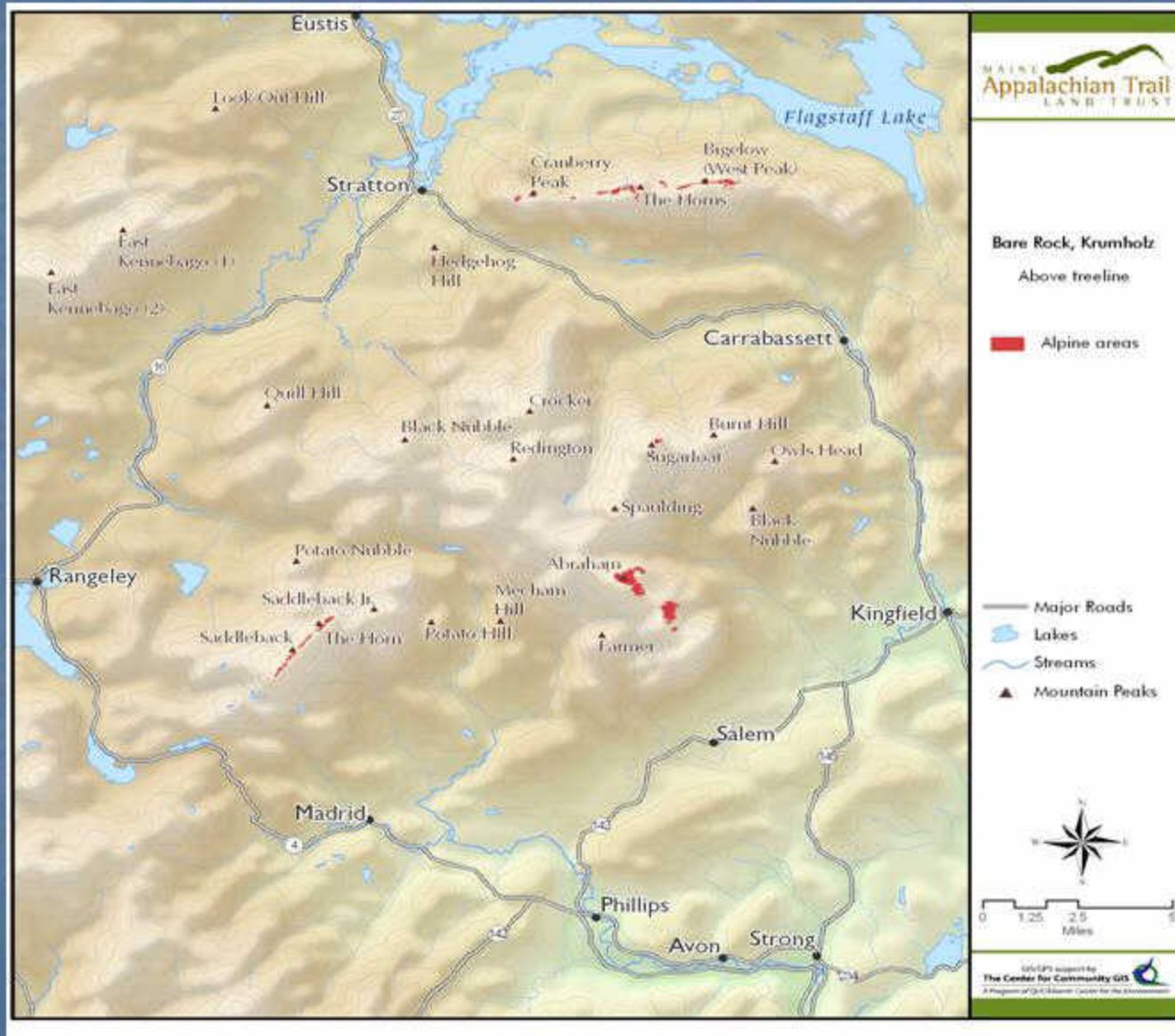


# Landcover Categories Combined



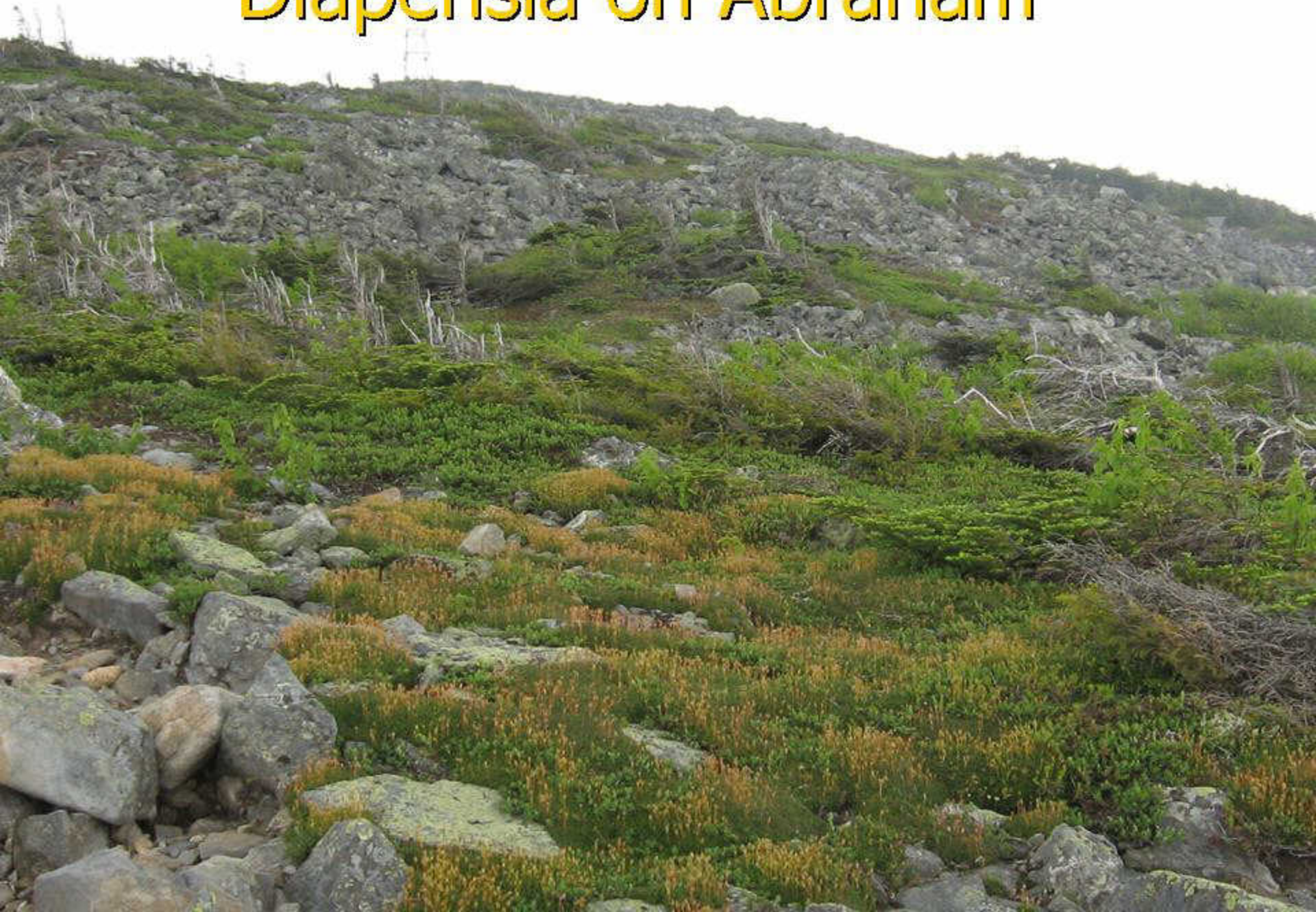


# Arctic Alpine Plants and Communities



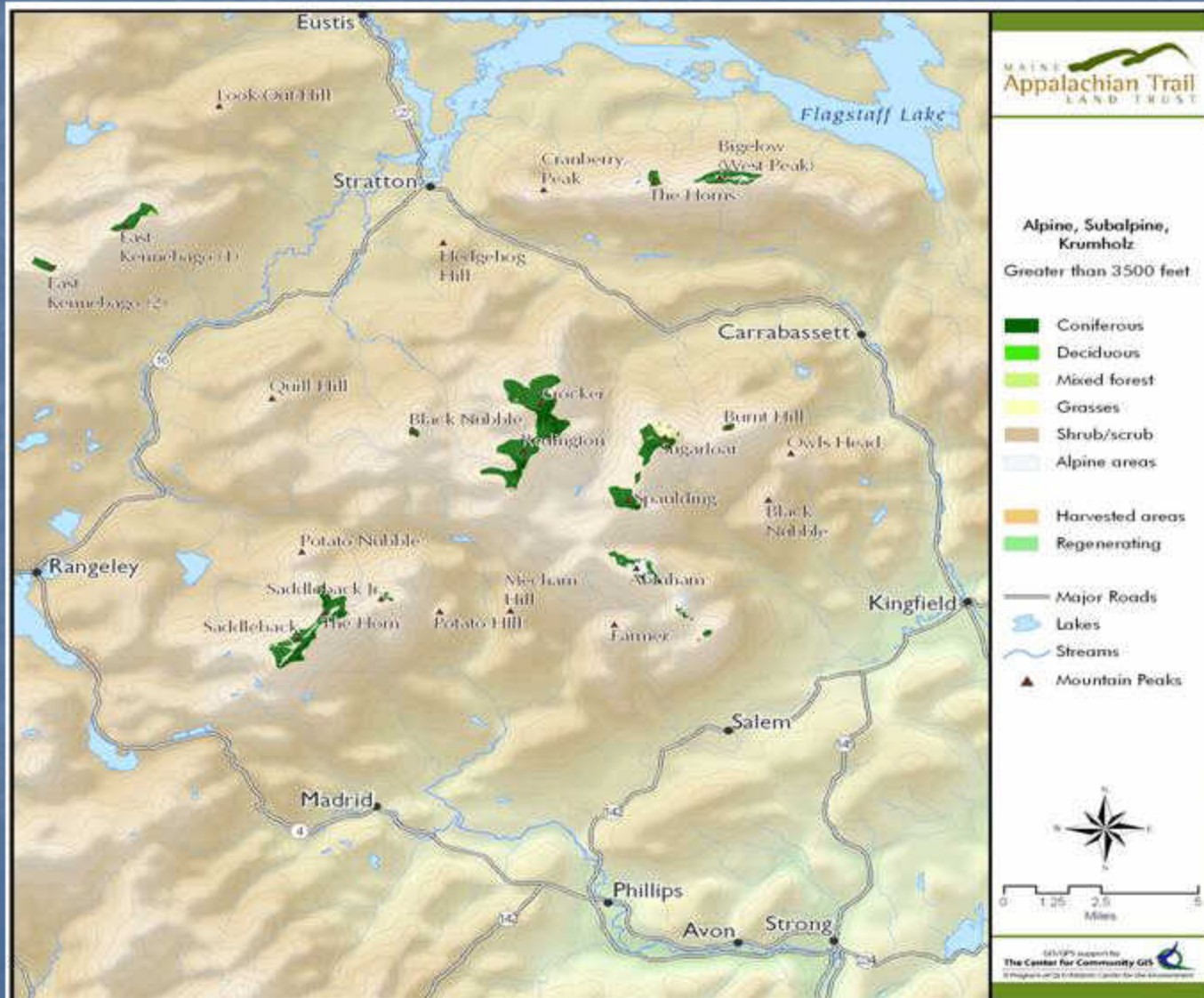


# Diapensia on Abraham





# Alpine to High Elevation Forest Transition



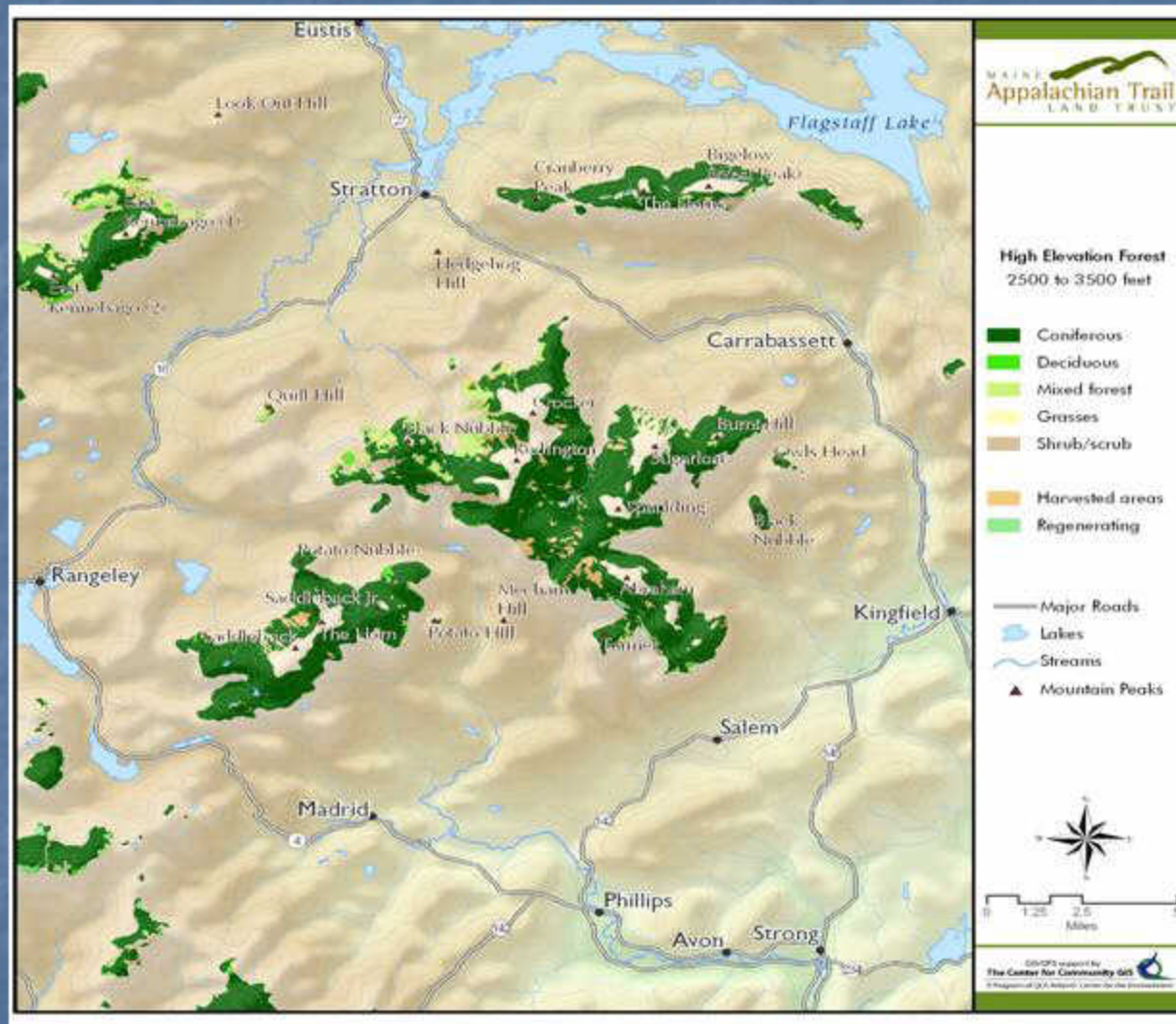


3800 ft. on Abraham





# High Elevation Montane Forest



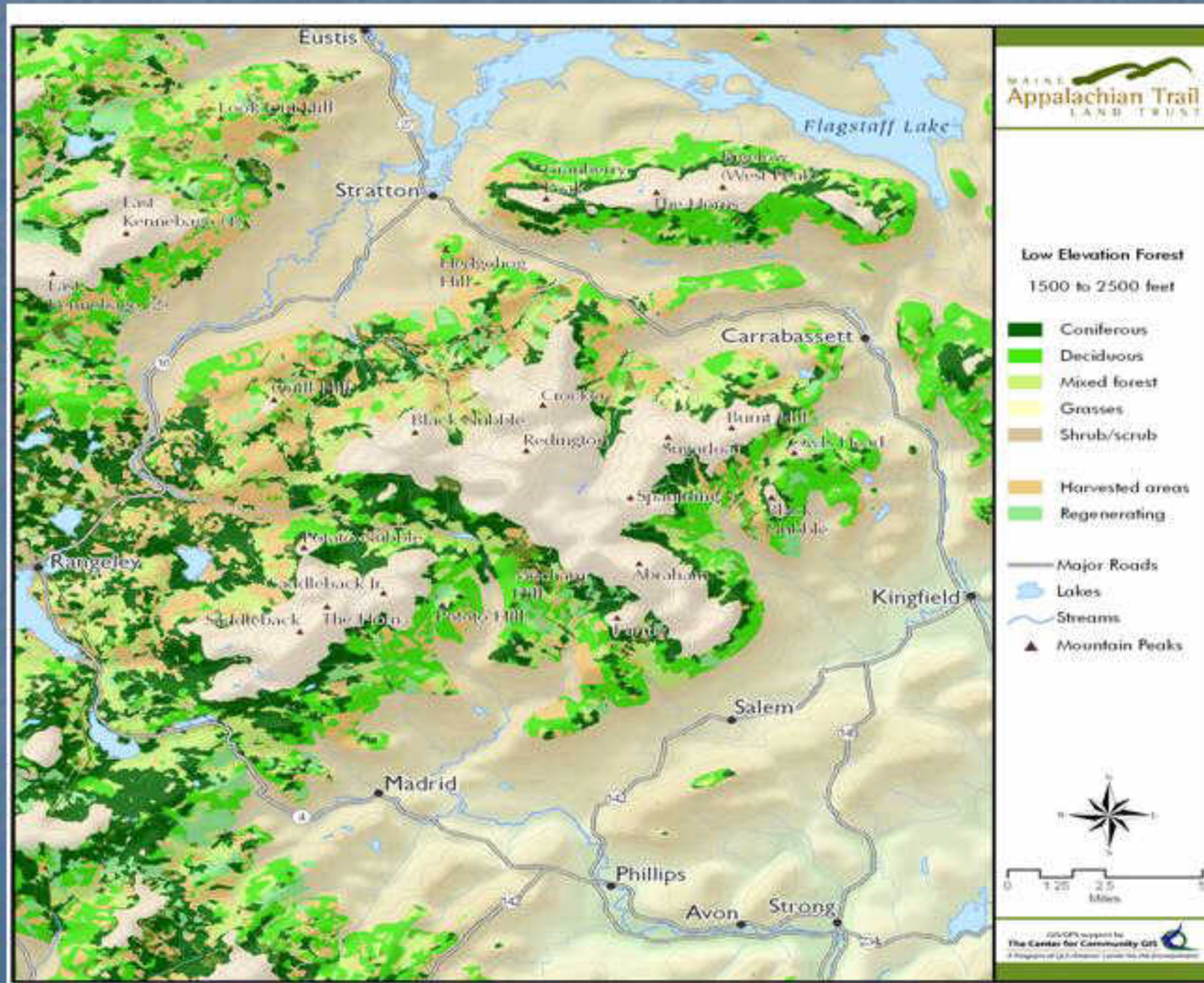


3200 ft. on Abraham





# Low Elevation Montane Forest





2300 ft. on Abraham



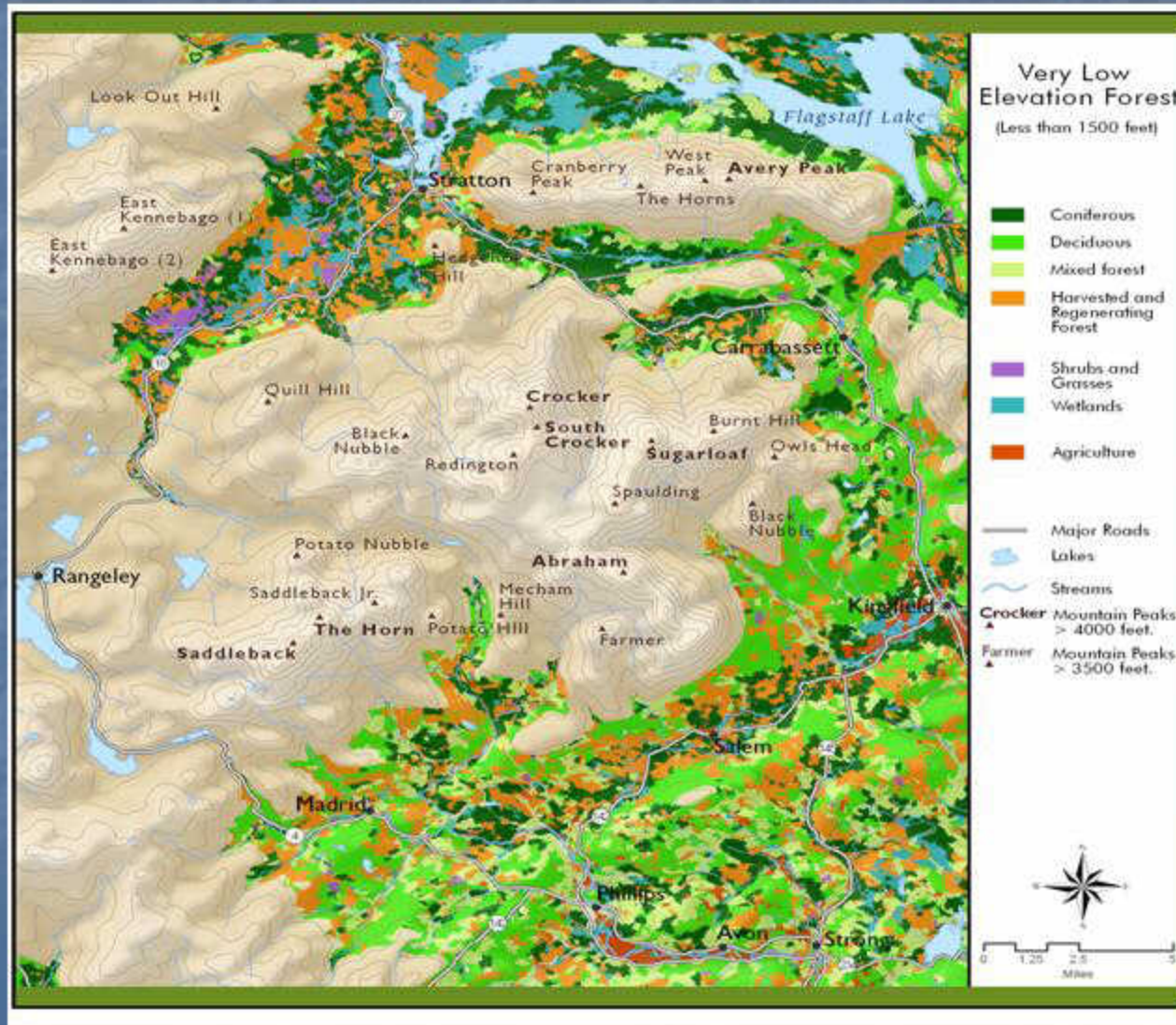


2100 ft. on Abraham





Valley Forest; Unique in its similarity to more southerly forest types, yet largely contiguous.





# Alpine Plants and State Status

| Species                                         | Environmental Characteristics            | Population Status <sup>+</sup>                       |
|-------------------------------------------------|------------------------------------------|------------------------------------------------------|
| bearberry willow <i>Salix uva-ursi</i>          | Arctic-alpine                            | Very rare, S-1 status by Maine Natural Areas Program |
| Lapland rosebay <i>Rhododendron lapponicum</i>  | Arctic-alpine                            | Very rare, S-1 status by Maine Natural Areas Program |
| alpine bearberry <i>Arctostaphylos alpina</i>   | Arctic-alpine                            | Very rare, S-1 status by Maine Natural Areas Program |
| diapensia <i>Diapensia lapponica</i>            | Arctic-alpine                            | Rare, S-1 status by Maine Natural Areas Program      |
| alpine sweet grass <i>Hierchloe alpina</i>      | Arctic-alpine                            | Very rare, S-1 status by Maine Natural Areas Program |
| bigelow sedge <i>Carex bigelowii</i>            | Arctic-alpine                            | Rare, S-2 status by Maine Natural Areas Program      |
| bog bilberry <i>Vaccinium uliginosum</i>        | Exposed rocky slopes                     | Uncommon                                             |
| dwarf bilberry <i>Vaccinium cespitosum</i>      | Rocky shores, openings, and alpine areas | Uncommon                                             |
| black crowberry <i>Empetrum nigrum</i>          | Exposed peat and rock                    | Occasional                                           |
| mountain sandwort <i>Minuartia groenlandica</i> | Exposed gravel                           | Rare, S-3 status by Maine Natural Areas Program      |
| deer-hair sedge <i>Scirpus cespitosus</i>       | Ledge, gravel, rocky shores              | Uncommon                                             |



# Alpine Communities and State Status

| Community                                 | Important Characteristics                                                                                                                                                                                                                                                                                                    | State Status* |
|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Dwarf Heath – Graminoid Alpine Ridge      | Most common community type above treeline, includes true, arctic alpine indicator plant species. Mixture of dwarf evergreen shrubs and herbs, scattered boulders interspersed among vegetation cover.                                                                                                                        | S-2           |
| Diapensia Alpine Ridge                    | Diapensia cushions are the dominant and defining characteristic. Matted evergreen shrubs and low herb cover among bedrock and boulder matrix.                                                                                                                                                                                | S-1           |
| Fir – Heart-leaved Birch Subalpine Forest | Dense canopy of stunted balsam fir and heart-leaved birch. Recent openings may include hobblebush and mountain ash. Herb species in dense patches. Typically above 2700' on ridgetops or slopes.                                                                                                                             | S-3           |
| Spruce-Fir-Birch Krummholz                | Dense mats of prostrate black spruce, balsam fir and heart-leaved paper birch and shrubs under 2 meters high. Total shrub cover up to 100 %. Small patches of herbs such as bluebead lily and Canada Mayflower among shrubs.                                                                                                 | S-3           |
| Heath – Lichen Subalpine Slope Bog        | A tilted ericaceous bog shrubs growing on Sphagnum moss carpet on rocky slopes. Sparse trees may include heart-leaved paper birch, northern white cedar, paper birch, and black spruce.                                                                                                                                      | S-1           |
| Cotton-grass – Heath Alpine Bog           | Graminoids such as deer-hair sedge and tufted cotton grass in patches covering 25-40 percent of the sphagnum/peat layer. Ericaceous shrubs include bilberries, crowberry, Labrador tea, leatherleaf, rhodora, and sheep laurel. Some stunted black spruce and balsam fir scattered. Alpine or subalpine at or near treeline. | S-2           |



# High Elevation/Boreal Forest Birds

| Species                                           | Important Habitat Features                                                        | Population Status and Conservation                                                                                                            |
|---------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Spruce grouse <i>Falcipennis canadensis</i>       | large stands of dense fir and spruce.                                             | Vermont endangered, heritage list in New Hampshire, uncommon in Maine; limited to the degree that transitional boreal forest is limited.      |
| Black-backed Woodpecker <i>Picoides arcticus</i>  | large areas of dead and declining mature spruce and fir.                          | Vermont special concern, heritage list in New Hampshire, uncommon in Maine; limited to the degree that transitional boreal forest is limited. |
| Three-toed Woodpecker <i>Picoides tridactylus</i> | large areas of dead and declining mature spruce and fir.                          | Maine and Vermont special concern, heritage list in New Hampshire.                                                                            |
| Gray Jay <i>Perisoreus canadensis</i>             | dense medium aged to mature coniferous forest structure.                          | Vermont special concern, heritage list in New Hampshire, uncommon in Maine.                                                                   |
| Boreal chickadee <i>Poecile hudsonicus</i>        | mature coniferous forest with dead and declining trees for cavity nesting.        | Limited to the degree that transitional boreal forest is limited.                                                                             |
| Bicknell's Thrush <i>Catharus bicknelli</i>       | low, dense, spruce-fir forest at high elevation in U.S. portion of range.         | Maine and Vermont special concern.                                                                                                            |
| Blackpoll Warbler <i>Dendroica striata</i>        | low, dense, spruce/spruce-fir forest typically associated with higher elevations. | Limited to the degree that transitional boreal forest is limited.                                                                             |

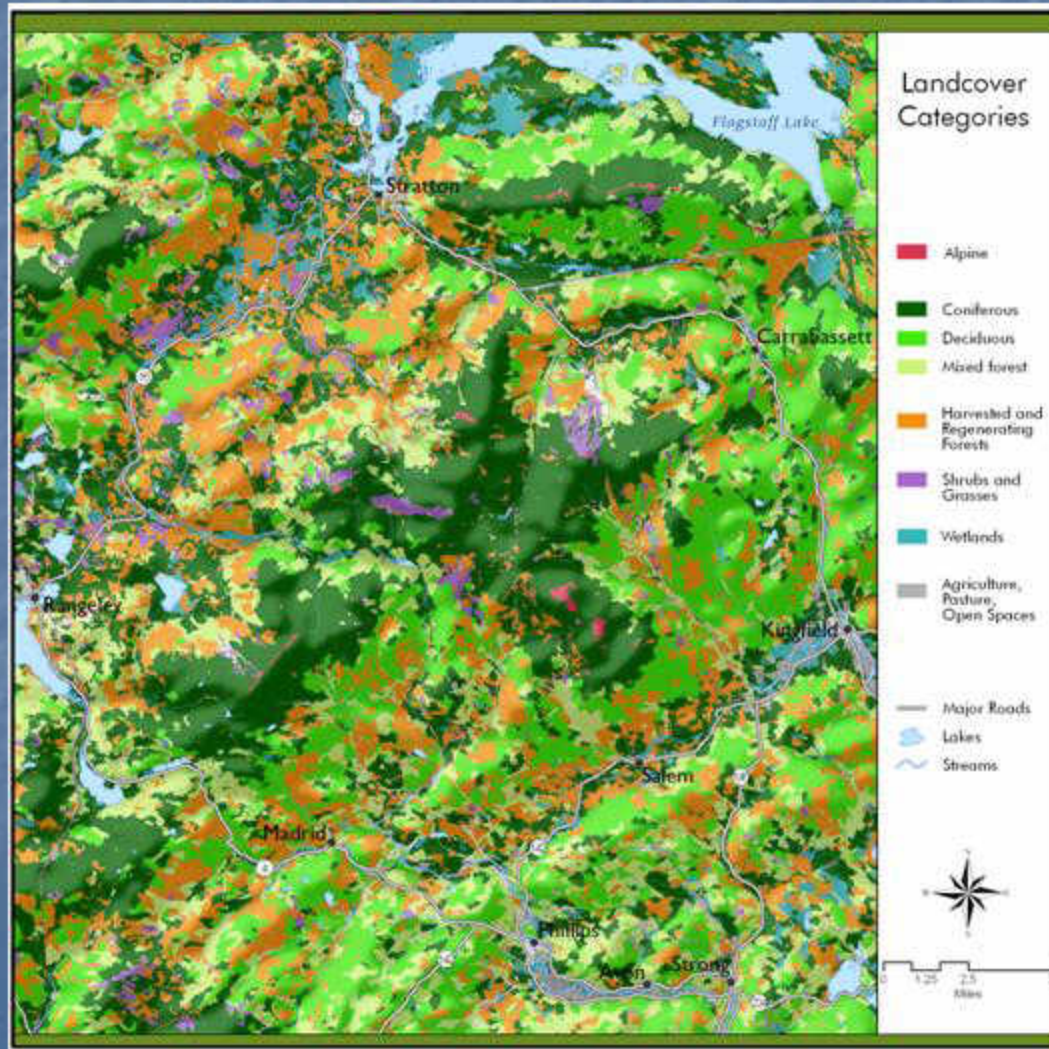


# Range of the Lynx and compare with Pine Marten





# Forest Landscape Contiguity; Important for Populations of Area Sensitive Species e.g. bobcat, bear, moose, otter, barred owl, fisher.





Study Area is the Landscape Linkage between Maritimes, Quebec, Northern Maine, New Hampshire, Vermont and Adirondacks. Where are the Gaps in Large Scale Land Protection Across this Region?





**Alpha** (*within community*), **Beta** (*across communities*), and  
**Gamma** (*across landscapes*) Richness/Diversity and  
Conservation in Maine

